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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/834,762	04/16/2001	Thomas Jacob	MERCK-2228	4287

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06/20/2003

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EXAMINER

WU, SHEAN CHIU

ART UNIT

PAPER NUMBER

1756

8

DATE MAILED: 06/20/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/834,762

Applicant(s)

JACOB ET AL.

Examiner

Shean C Wu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 March 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 4-21 is/are rejected.
- 7) ☒ Claim(s) 3 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

2. Claims 1-2, 6-16 and 18-21 are rejected under 35 U.S.C. 102(b)/(a) as being anticipated by Auman et al. (US 5,520,845 or US 6,139,926).

The references disclose that a liquid crystal display device consists of a liquid crystal layer with opposite sides, a set of electrodes on either side of the liquid crystal layer and an alignment layer between each set of electrodes and the liquid crystal layer. The electrodes bearing the alignment layer are supported by substrates typically of glass or plastic. Alignment of the liquid crystal molecules occurs at a certain angle, referred to as the surface tilt angle or simply as the tilt angle, with respect to the plane of the inside of two substrates, which support the electrodes. Displays using the TN or the STN effect use electrodes on opposite sides of the liquid crystal layer in order to achieve the predominantly vertical electrical field required for the switching of the liquid crystals in these display modes. The Super-twisted nematic (STN) LCDs require higher tilt angles, typically between 4 to 30 degrees and particularly between 5 to 15 degrees with alignment layer having thickness between 10 to 200 nm (see col. 3, lines 1-24, col. 9, lines 50-53 of US '926 and col. 3, lines 30-39 and col. 4, lines 28-39 of US '845). The

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liquid crystal mixtures (shown from col. 17, line 64 to col. 18, line 26) have the claimed liquid crystal properties. The reference anticipates the claimed invention.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-2 and 4-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baur et al. (US 5,188,758) in view of Auman et al. (US 5,520,845 or US 6,139,926).

The reference discloses an electrooptical display element which can be multiplexed, has two support plates which, with an edging, form a cell containing a nematic liquid crystal material with positive dielectric anisotropy, and has a small surface tilt angle (not more than 10^0) and a twist angle with a value between 150^0 and 250^0 , wherein the ratio of the elastic constants for bending and twisting K_3 / K_2 of the liquid crystal material and the twist angle are such that when using liquid crystal material with the ratio of the elastic constants K_3 / K_1 for bending and spreading, which is in the order of the maximum possible, the steepness of the characteristic line is approved by the characteristic line is bi-stable or when using liquid crystal material with the ratio of the elastic constants K_3 / K_1 for bending and spreading either small enough or of the smallest order possible, the steepness of the characteristic line is improved but the characteristic

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line remains stable. The invention furthermore relates to a corresponding supertwist cell (see col. 2, lines 6-54).

The reference further discloses a liquid crystal mixture with suitable combination of material parameters (see Examples 6 and 12-14). The Example 6 including the compounds of formulae I-III reads on the liquid crystal medium of the present claims. The results of Figures 8-10 anticipate the parameters, such as surface tilt angle, twist angle and sharpness of transmission (see col. 13 and col. 14). The reference differs from the claims in that the claims have a thickness of 3 nm to 150 nm of alignment layer. Although the reference does not specifically disclose the thickness of alignment layer, however, the present thickness of alignment layer is well known and used in STN (supertwist nematic) device (Auman et al. US 5,520,845 or US 6,139,926). Therefore, it would have been obvious to those skilled in the art to utilize the reference teaching to arrive at the claimed invention.

Allowable Subject Matter

3. Claim 3 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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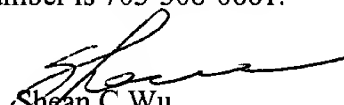
Response to Arguments

4. Applicant's arguments with respect to claims 1-2 and 4-21 have been considered but are moot in view of the new ground(s) of rejection.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shean C Wu whose telephone number is 703-308-3956. The examiner can normally be reached on Monday-Friday 9:30 -6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 703-308-2464. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-7718 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.


Shean C Wu
Primary Examiner
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